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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/672,453	09/26/2003	Minho Kang	9242-000034	9725

27572 7590 01/25/2007  
HARNESSE, DICKEY & PIERCE, P.L.C.  
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EXAMINER
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LE, THI Q

ART UNIT	PAPER NUMBER
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2613

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/25/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/672,453

Applicant(s)

KANG ET AL.

Examiner

Thi Q. Le

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3 is/are allowed.
- 6) ☐ Claim(s) 4-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

DETAILED ACTION

*Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. **Claims 7 and 8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. **Claim 7** recites the limitation "said method" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 7 recite said method that uses calculated cost, but there was no method steps claimed. Further it seems from the preamble that the claim is related to an apparatus claim, rather than a method claim.

4. **Claim 8** recites the limitation "said method" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim 8 recite said method that uses calculated cost, but there was no previous recitation of any method and there are no method steps. Further it seems from the preamble that the claim is related to an apparatus claim, rather than a method claim.

*Claim Rejections - 35 USC § 101*

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**Claim 8** is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 8 recites wherein said method uses a calculated cost; then it recites the formulas, equations and variables that are use to calculate the cost which is to be use by the said method. There are not method steps in claim 8, hence it fails to disclose the methods that utilize the cost, which are calculated by the formulas, equations, and variable recited. It appears that cost are calculated, but are not being utilize; further there is no practical application of the cost equation/formulas, hence the claim represents an abstract idea. Abstract ideas are non-statutory under 35 U.S.C. 101.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 7** is rejected under 35 U.S.C. 102(e) as being anticipated by **Buddhikot et al.** (US PGPub 2004/0004938).

Consider **claim 7**, Buddhikot et al. clearly show and disclose, a highly utilizable protection mechanism for WDM mesh network, wherein said method uses calculated cost (read as, assigning each link one or more cost value; paragraph 0052); and wherein said cost is the sum value of allocated average wavelength rate (read as, the amount of bandwidth use on a link),

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capacity of allocating resources (read as, bandwidth capacity of a link), and amount of necessary resources (read as, residual capacity of a light) (figure 3; paragraphs 0051-0054).

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. **Claims 4-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Buddhikot et al. (US PGPub 2004/0004938)**.

Consider **claim 4**, Buddhikot et al. clearly show and disclose, a highly utilizable protection mechanism for WDM mesh network comprising of; a step of waiting randomly generated channel request which is a request to generate channel between source node and target node (read as, the ingress router receives a label switched path request; figure 1), a step of finding shortest path set within limit of hop length (read as, with backtracking, the source node uses a shortest path algorithm to find a primary path; figure 1), a step of finding disjointed path set for each path of the shortest path set (read as, computing a disjoint path backup set of edges for the primary path; figure 8), a step of calculating cost by using cost function considering current network state (read as, assigning each link one or more cost value; paragraph 0052), and a step of checking whether each link has enough capacity to allocate channel resources for the channel request with best working and backup path pair having minimum cost (read as, identifying the residual capacity for a link and if there is insufficient network capacity, then the request is rejected; paragraph 0099), wherein said step of calculating cost calculates cost using the sum value of allocated average wavelength rate (read as, the amount of bandwidth use on a link), capacity of allocating resources (read as, bandwidth capacity of a link), and amount of necessary resources (read as, residual capacity of a light) (figures 1 and 8; paragraphs 0002, 0047, 0059, 0051-0054, 0089, 0091 and 0099). Buddhikot et al. fails to clearly disclose, a step of sorting the cost lists from minimum cost to maximum cost, a step of making pairs using shortest path set and disjoint path set for WP and BP, and a step of selecting best pair having minimum cost.

It would have been an obvious matter of design choice to sort the cost list from minimum cost to maximum cost. Since Buddhikot et al. disclose the steps of computing and selecting primary and backup path, such that the total cost of the paths are minimized. Thus, it is inherent that the path cost for differ paths are calculated and stored in a memory, so that the path with the least cost can be selected. Further, the applicant has not disclosed that sorting the cost list in ascending order solves the stated problems or is for any particular purpose; it appears that the invention would perform equally well by choosing a minimum cost from an unsorted cost list.

It would have been obvious for a person of ordinary skill in the art at the time of the invention to understand: a step of making pairs using shortest path set and disjoint path set for WP (read as, primary path) and BP (read as, backup path), and a step of selecting best pair having minimum cost, is an equivalent for, assigning each link a cost value, computing the shortest primary/backup paths between a source node and a destination node and selecting the shortest paths with the least cost value as disclosed by Buddhikot et al.

Consider **claim 5**, and **as applied to 4 above**, Buddhikot et al. further disclose, wherein after said step of checking whether each link has enough capacity, if a result of checking is enough wavelength for both WP and BP, then a step of accepting said channel request, and if not, then a step of rejecting said channel request (read as, identifying the residual capacity for each link and if there is insufficient network capacity, then the request is rejected; paragraph 0099).

Consider **claim 6**, Buddhikot et al. clearly show and disclose, a highly utilizable protection mechanism for WDM mesh network comprising of; a step of producing a shortest path set when channel request is generated, wherein channel request is a request to generate

channel between source node and target node (read as, the ingress router receives a label switched path request, then with backtracking, the source node uses a shortest path algorithm to find a primary path; figure 1), a step of selecting disjoint path set to select working path and backup path in said path set (read as, computing a disjoint path backup set of edges for the primary path; figure 8), a step of calculating cost by using cost function considering current network state (read as, assigning each link one or more cost value; paragraph 0052), and a step of allocating resources by checking whether each link has enough capacity to allocate channel resources for the channel request with best working and backup path pair having minimum cost (read as, identifying the residual capacity for a link and if there is insufficient network capacity, then the request is rejected; paragraph 0099), wherein said step of calculating cost calculates cost using the sum value of allocated average wavelength rate (read as, the amount of bandwidth use on a link), capacity of allocating resources (read as, bandwidth capacity of a link), and amount of necessary resources (read as, residual capacity of a light) (figures 1 and 8; paragraphs 0002, 0047, 0059, 0051-0054, 0089, 0091 and 0099). Buddhikot et al. fails to clearly disclose, a step of selecting best pair having minimum cost.

It would have been obvious for a person of ordinary skill in the art at the time of the invention to understand: a step of selecting best pair having minimum cost, is an equivalent for, assigning each link a cost value, computing the shortest primary/backup paths between a source node and a destination node and selecting the shortest paths with the least cost value as disclosed by Buddhikot et al.



*Allowable Subject Matter*

12. **Claims 1-3** are allowed.
13. The following is a statement of reasons for the indication of allowable subject matter:
- Claim 1** is allowable because, prior arts failed to disclose the detailed method and formulas for calculating cost as recited in claim 1 on page 31 lines 23-24 and page 32 lines 1-15.
- Claim 2** is allowable because it is dependent upon claim 1, which is an allowable claim.
- Claim 3** is allowable because, prior arts failed to disclose the detailed method and formulas for calculating cost as recited in claim 3 page 33 lines 16-24 and page 34 lines 1-9.

*Conclusion*

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.
- a) Abrams, Peter; 2002/0021466
  - b) Patel et al.; 2002/0041410
  - c) Sahasrabuddhe et al.; 2002/0159114
  - d) Qiao et al.; 2003/0229807
  - e) Doshi et al.; 2004/0205239
  - f) Qiao et al.; 2005/0031339
  - g) Chaudhuri et al.; 2005/0025058
  - h) Su et al.; 6,850,705
  - i) de Boer et al.; 6,917,759
15. Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

16. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Thi Le whose telephone number is (571) 270-1104. The Examiner can normally be reached on Monday-Friday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Thi Le*

A handwritten signature in black ink, appearing to read 'KV', is positioned above the printed name and title.

**KENNETH VANDERPUYE  
SUPERVISORY PATENT EXAMINER**